

WHAT IS CLAIMED IS:

1. A device for storing a plurality of tissue samples comprising:
an elongate container having a cavity for storing a plurality of tissue samples,
an open top, and an open bottom in flow communication with the open top; and
a cutting portion coupled to the open top and configured to cut the plurality of
tissue samples that deposit in the cavity through the open top;
wherein a portion of the elongate container adjacent the open bottom has a
restriction smaller than the open bottom to prevent the plurality of tissue samples
from exiting the container via the open bottom.
2. The device of claim 1, wherein the cutting portion selectively couples to
the open top of the elongate container and defines a through hole in flow
communication with the open top, the cavity, and the open bottom.
3. The device of claim 1, wherein the cutting portion comprises an upper
jaw and a lower jaw configured to cut tissue when the upper jaw mates with the
lower jaw.
4. The device of claim 3, wherein the lower jaw includes a through hole in
flow communication with the open top and the open bottom, and wherein the lower
jaw is coupled to the open top of the elongate container such that the through hole is
in flow communication with the open top, the cavity, and the open bottom.
5. The device of claim 3, wherein the upper jaw includes a protrusion
configured to push the plurality of tissue samples into the cavity.
6. The device of claim 5, wherein the protrusion extends around an edge
of the upper jaw.

7. The device of claim 3, wherein the upper jaw is configured to restrict the plurality of tissue samples from adhering to the upper jaw.

8. The device of claim 3, wherein the upper jaw defines a plurality of holes.

9. The device of claim 3, wherein at least one of the upper jaw and the lower jaw has a support portion configured to allow the upper jaw and the lower jaw to rotate with respect to each other.

10. The device of claim 1, wherein the elongate container includes an angled base wall adjacent the open top.

11. The device of claim 1, wherein the elongate container is configured to restrict the plurality of tissue samples from adhering to an inner wall of the elongated container.

12. The device of claim 1, wherein the elongated container includes at least one hole on a side wall.

13. The device of claim 1, wherein a portion of the elongate container adjacent the open bottom is hour-glass shaped.

14. A device for storing a plurality of tissue samples comprising:
an elongate container having a cavity for storing a plurality of tissue samples, an open top, and an open bottom in flow communication with the open top, wherein the open top and the open bottom are aligned with a longitudinal axis of the cavity;
and

a cutting portion coupled to the open top and configured to cut the plurality of tissue samples that deposit in the cavity through the open top;

wherein a portion of the elongate container adjacent the open bottom is configured to prevent the plurality of tissue samples from exiting the container via the open bottom.

15. The device of claim 14, wherein the cutting portion selectively couples to the open top of the elongate container and defines a through hole in flow communication with the open top, the cavity, and the open bottom.

16. The device of claim 14, wherein the cutting portion comprises an upper jaw and a lower jaw configured to cut tissue when the upper jaw mates with the lower jaw.

17. The device of claim 16, wherein the lower jaw includes a through hole, and wherein the lower jaw is coupled to the open top of the elongate container such that the through hole is in flow communication with the open top, the cavity, and the open bottom.

18. The device of claim 16, wherein the upper jaw includes a protrusion configured to push the plurality of tissue samples into the cavity.

19. The device of claim 18, wherein the protrusion extends adjacent an edge of the upper jaw.

20. The device of claim 16, wherein the upper jaw is configured to restrict the plurality of tissue samples from adhering to the upper jaw.

21. The device of claim 16, wherein the upper jaw defines a plurality of holes.

22. The device of claim 16, wherein at least one of the upper jaw and the lower jaw has a support portion configured to allow the upper jaw and the lower jaw to rotate with respect to each other.

23. The device of claim 14, wherein the elongate container includes an angled base wall adjacent the open top.

24. The device of claim 14, wherein the elongate container is configured to restrict the plurality of tissue samples from adhering to an inner wall of the elongated container.

25. The device of claim 14, wherein the elongated container defines at least one hole in a side wall of the elongate container.

26. The device of claim 14, wherein the portion of the elongate container adjacent the open bottom is hour-glass shaped.

27. The device of claim 14, wherein the portion of the elongate container adjacent the open bottom has a restriction that is smaller than the open bottom.

28. An endoscope working channel cap assembly for coupling to an existing seal, the cap assembly comprising:

an interface configured to be coupled to a proximal end of a working channel of an endoscope;

an introducer extending from the interface and configured to be advanced through the existing seal and hold open the existing seal; and

a seal portion connected to the interface, the seal portion including a seal disposed therein and configured to prevent flow communication across the seal.

29. The assembly of claim 28, wherein the introducer includes a hollow shaft.

30. The assembly of claim 29, wherein the hollow shaft is configured to accommodate a device for storing a plurality of tissue samples.

31. The assembly of claim 28, wherein the seal is configured to allow the advancement and retraction of a device for storing a plurality of tissue samples.

32. The assembly of claim 28, wherein the seal is integrally formed with the interface.

33. The assembly of claim 28, further comprising a lid portion selectively coupled to the seal portion and configured to close an open end of the seal portion.

34. A flushing device comprising:

an elongate member defining a receiving cavity, an open top, and an open bottom;

a connector proximate the open bottom and configured to provide a fluid tight connection with a source of fluid; and

a nozzle within the elongate member between the open bottom and the receiving cavity;

wherein the open bottom is in flow communication with the open top via the nozzle and the receiving cavity.

35. The flushing device of claim 34, wherein the elongate member includes a support portion disposed between the connector and the open top, and wherein a portion of the nozzle is disposed in the support portion.

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36. The flushing device of claim 34, wherein the elongate member includes a flared portion adjacent the open top.

37. The flushing device of claim 34, further comprising at least one notch at the open top.

38. The flushing device of claim 34, wherein the connector is a luer lock.

39. The flushing device of claim 34, wherein the receiving cavity is configured to receive a storage device for storing a plurality of tissue samples, the storage device comprising:

an elongate container having a container cavity for storing a plurality of tissue samples, an open container top, and an open container bottom in flow communication with the open container top; and

a cutting portion coupled to the open container top and configured to cut the plurality of tissue samples that deposit in the container cavity through the open container top;

wherein a portion of the elongate container adjacent the open container bottom has a restriction smaller than the open container bottom to prevent the plurality of tissue samples from exiting the container via the open container bottom.

40. The flushing device of claim 39, wherein the nozzle extends into the receiving cavity and is configured to be coupled to the open container bottom such that the nozzle is in flow communication with the container cavity.

41. The flushing device of claim 40, wherein the nozzle is configured to form a substantially watertight coupling with the portion of the elongate container adjacent the open container bottom.

42. The flushing device of claim 39, wherein a portion of the elongate member adjacent the open top of the elongate member is configured to guide the storage device into the receiving cavity.

43. The flushing device of claim 39, wherein a portion of the elongate member adjacent the open top of the elongate member is configured to rotationally align the storage device with respect to the elongated member.

44. The flushing device of claim 39, wherein a portion of the elongate member adjacent the open top of the elongate member is configured to receive the cutting portion.

45. The flushing device of claim 39, wherein the flushing device is configured to flush the plurality of tissue samples out of the container cavity through a fluid connection from the source of fluid, through the nozzle, into the open container bottom, through the container cavity, and out the open container top.

46. An endoscopic instrument comprising:

a proximal handle coupled to a distal end effector assembly via an elongate member;

wherein the distal end effector assembly includes an upper jaw, a lower jaw rotatable relative to the upper jaw, and a collection device coupled to the lower jaw, the collection device comprising:

an elongate container having a cavity for storing a plurality of tissue samples, an open top, and an open bottom in flow communication with the open top;

wherein the upper jaw and the lower jaw are configured to cut the plurality of tissue samples that deposit in the cavity through the open top; and

wherein a portion of the elongate container adjacent the open bottom has a restriction smaller than the open bottom to prevent the plurality of tissue samples from exiting the container via the open bottom.

47. The endoscopic instrument of claim 46, wherein the lower jaw selectively couples to the open top of the elongate container and defines a through hole in flow communication with the open top, the cavity, and the open bottom.

48. The endoscopic instrument of claim 46, wherein the upper jaw and the lower jaw are configured to cut tissue when the upper jaw mates with the lower jaw.

49. The endoscopic instrument of claim 48, wherein the lower jaw includes a through, and wherein the lower jaw is coupled to the open top of the elongate container such that the through hole is in flow communication with the open top, the cavity, and the open bottom.

50. The endoscopic instrument of claim 48, wherein the upper jaw includes a protrusion configured to push the plurality of tissue samples into the cavity.

51. The endoscopic instrument of claim 50, wherein the protrusion extends adjacent an edge of the upper jaw.

52. The endoscopic instrument of claim 48, wherein the upper jaw is configured to restrict the plurality of tissue samples from adhering to the upper jaw.

53. The endoscopic instrument of claim 48, wherein the upper jaw defines a plurality of holes.

54. The endoscopic instrument of claim 46, wherein the elongate container includes an angled base wall adjacent the open top.

55. The endoscopic instrument of claim 46, wherein the elongate container is configured to restrict the plurality of tissue samples from adhering to an inner wall of the elongated container.

56. The endoscopic instrument of claim 46, wherein the elongated container defines at least one hole in a side wall of the elongate container.

57. The endoscopic instrument of claim 46, wherein the portion of the elongate container adjacent the open bottom is hour-glass shaped.

58. The endoscopic instrument of claim 46, wherein the open top and the open bottom are aligned with a longitudinal axis of the cavity.

59. The endocopsic instrument of claim 46, further comprising an endoscope working channel cap assembly for coupling to an existing seal, the cap assembly comprising:

an interface configured to be coupled to a proximal end of a working channel of an endoscope;

an introducer extending from the interface and configured to be advanced through the existing seal and hold open the existing seal; and

a seal portion connected to the interface, the seal portion including a seal disposed therein and configured to prevent flow communication across the seal.

60. The endocopsic instrument of claim 46, further comprising a flushing device comprising:

an elongate member defining a receiving cavity, an open top, and an open bottom;

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a connector proximate the open bottom and configured to provide a fluid tight connection with a source of fluid; and

a nozzle within the elongate member between the open bottom and the receiving cavity;

wherein the open bottom is in flow communication with the open top via the nozzle and the receiving cavity.

61. The endoscopic instrument of claim 60, further comprising an endoscope working channel cap assembly for coupling to an existing seal, the cap assembly comprising:

an interface configured to be coupled to a proximal end of a working channel of an endoscope;

an introducer extending from the interface and configured to be advanced through the existing seal and hold open the existing seal; and

a seal portion connected to the interface, the seal portion including a seal disposed therein and configured to prevent flow communication across the seal.

62. A method of acquiring a plurality of tissue samples comprising:

using a device to cut a first tissue sample from an internal tissue tract of a patient;

storing the first tissue sample in a container disposed within the internal tissue tract;

without removing the device from the patient, using the device to cut a second tissue sample from the internal tissue tract; and

storing the second tissue sample in the container disposed within the internal tissue tract;

wherein the container has a cavity for storing the first and second tissue samples, an open top, and an open bottom substantially axially aligned with and in flow communication with the open top; and

wherein a portion of the container adjacent the open bottom has a restriction smaller than the open bottom to prevent the first and second tissue samples from exiting the container via the open bottom.

63. The method of claim 62, further comprising pushing each of the first and second tissue samples into the container.

64. The method of claim 63, wherein the cutting and pushing occur substantially simultaneously.

65. The method of claim 62, further comprising traversing a seal of an endoscope working channel with an introducer portion of a cap assembly to keep open the seal, wherein the introducer portion is configured to accommodate the device.

66. The method of claim 65, wherein the cap assembly includes a seal.

67. The method of claim 65, further comprising traversing a seal of the cap assembly with the container and the first and second tissue samples stored in the container.

68. The method of claim 67, wherein the traversing step occurs without the seal of the cap assembly forcing either of the first and second tissue samples out of the container.

69. The method of claim 67, wherein the traversing step occurs without the seal of the cap assembly compromising the diagnostic integrity of either of the first and second tissue samples.

70. The method of claim 62, further comprising removing the first and second tissue samples from the container.

71. The method of claim 70, wherein the first and second tissue samples are flushed out of the container with a fluid.

72. The method of claim 71, further comprising attaching a fluid delivery device to the container storing and flushing the first and second tissue samples out of the container with fluid from the fluid delivery device.

73. A method of removing tissue samples from a container comprising:
providing a container having a cavity with tissue samples, an open top, and an open bottom in flow communication with the open top, wherein a portion of the container adjacent the open bottom has a restriction smaller than the open bottom to prevent the tissue samples from exiting the container via the open bottom; and
delivering fluid through the open bottom to flush the tissue samples out of the cavity via the open top.

74. The method of claim 73, further comprising coupling a fluid delivery device to the container.

75. The method of claim 74, wherein the step of delivering fluid includes delivering fluid from the fluid delivery device to the open top via the open bottom and the cavity.

76. The method of claim 74, wherein the fluid delivery device includes a source of fluid and a flushing device to couple the source of fluid to the container.

77. The method of claim 76, further comprising extending a nozzle of the flushing device into the open bottom of the container.

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